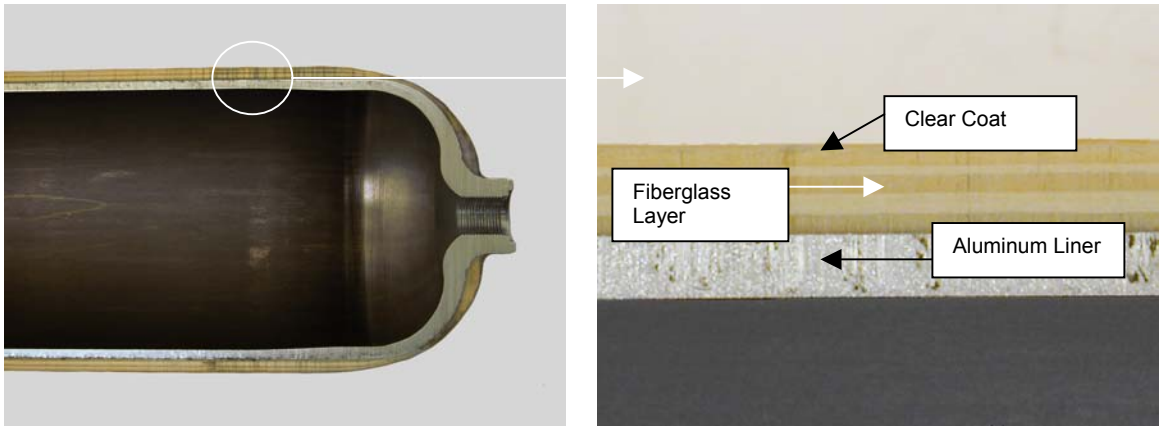
SCBA CYLINDER INSPECTION
FIBERGLASS COMPOSITE CYLINDERS

WARNING
Do not refill any cylinder that is damaged. Damaged cylinders may suddenly leak or rupture if charged with compressed air. Failure to carefully inspect for damage, following these and the manufacturer's instructions, and to empty the air from damaged cylinders and remove them from service may result in injury or death.

The purpose of this document is to supplement, not replace, the inspection procedures recommended by the manufacturer of the cylinders. It is limited to a discussion of the outside wall of the cylinder. Refer to the cylinder manufacturers instructions for inspection of cylinder neck, threads and the interior. If you have any questions regarding this document or regarding a cylinder's condition, refer to the cylinder manufacturer's instructions or contact Scott Health and Safety at 800-217-7257.

Cylinder Construction
Fiberglass Composite cylinders used in conjunction with SCBA are made up of layers of fiberglass composite materials over-lapping the aluminum cylinder liner. The composite fiber materials are covered by a clear gel-coat visible from the outside of the cylinder. (Reference figure 1) The fiber composite material is spun over the top of the aluminum cylinder liner. This fiberglass layer is gray in color. The outer coating of the cylinder is a clear gel-coat similar to paint to provide a clear finish to the cylinder.



Side view of Cylinder Construction Magnified view of cylinder construction

Figure 1
Cylinder Construction

Cylinder Inspection
Cylinders damage or defects are categorized in three levels identified as Level 1, Level 2, or Level 3. These levels of damage are further described below.

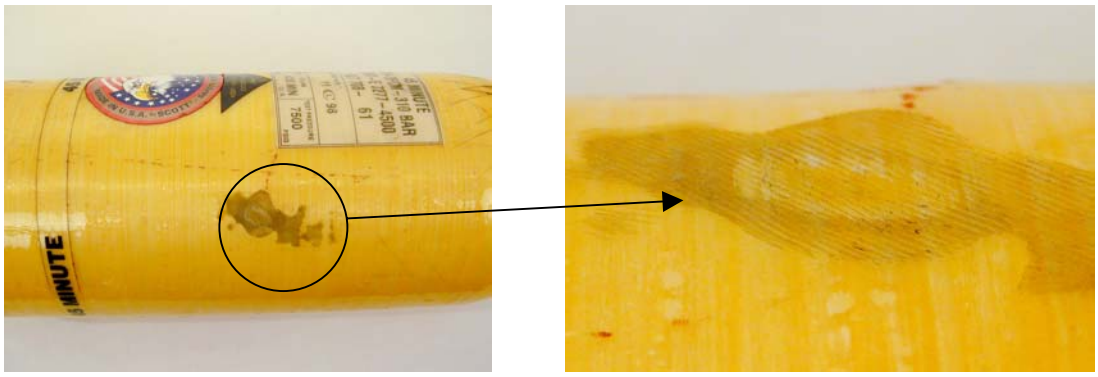
Level 1 Damage/Defects

Level 1 damage or defects are identified by scratches or damage to the outer coating of the cylinder. The cylinder may also exhibit a slight discoloration of the outer coating. This level defect does not require the cylinder to be removed from service. Slight discoloration of the outer coating also does not require removal of the cylinder from service unless the labeling of the cylinder has also turned black or brown, or the labels are slightly charred. (Reference figure 2) Areas of the cylinder exhibiting Level 1 damage are to be monitored for possible additional damage.

Figure 2
Level 1 Damage/Defect
Scratches in the outer coating of the cylinder

Level 2 Damage/Defects

A Level 2 damage or defect of the cylinder constitutes damage beyond Level 1, affecting the fiberglass composite layer of the cylinder. This damage will expose the fiberglass composite layer and may further exhibit fraying of the fiberglass composite. (Reference figure 3) Cylinders exhibiting Level 2 damage should be removed from service and forwarded to a US Department of Transportation (DOT) authorized hydrostatic testing facility for further inspection and repair.

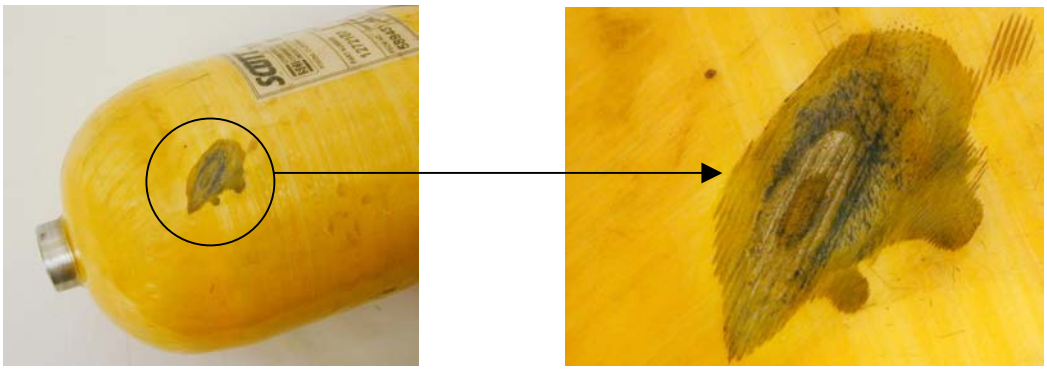


Level 2 Damage on cylinder Side wall* Magnified View of Level 2 Damage
(* area darkened for viewing picture)

Figure 3
Level 2 Damage/Defect

Level 3 Damage/Defect

Level 3 damage to the cylinder will exhibit a deep cut or abrasion of the outer gel coat and fiberglass layer. Level 3 damage can also be identified as severe discoloration of the cylinder with the labeling becoming bubbled, and charred from exposure to high heat. (Reference figure 4) Cylinders exhibiting Level 3 damage should be depressurized of air and removed from service.



Level 3 Damage on cylinder crown* Magnified view of Level 3 Damage
(* area darkened for viewing picture)

Figure 4
Level 3 Damage/Defect